N.J.A.C. 7:18 October 20, 2003
REGULATIONS GOVERNING THE CERTIFICATION OF LABORATORIES AND ENVIRONMENTAL MEASUREMENTS
Revisions based on Incorporation of Air Testing Requirements

SUBCHAPTER 1. GENERAL PROVISIONS

7:18-1.1 Scope and Authority

(c) This chapter is adopted pursuant to the following statutes:

8. The Air Pollution Control Act, N.J.S.A. 26:2C-1 et seq.

7:18-1.5 Incorporation by Reference

(a) The following regulations promulgated by the USEPA, together with all amendments and supplements, are incorporated by reference into this chapter:

4. The methods for the analysis of airborne emissions, listed in 40 CFR Part 151, Appendix M; Part 60, Appendix A; Part 61, Appendix B; and Part 63, Appendix A; and

5. The Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air (EPA document EPA/625/R-96/010b).

7:18-1.7 Definitions

The following words and terms, when used in this chapter, shall have the following meanings. If a definition in this section differs from the corresponding definition in any regulation or other document incorporated by reference under N.J.A.C. 7:18-1.5, the definition in the document incorporated by reference shall control.

"Air sampling train" means an air sampling device consisting of an intake nozzle, filters, a series of impingers, valves, sampling pump, vacuum gauge, temperature sensor, and flow sensor.

"Clean Air Program" means the Department's program implementing the certification requirements for laboratories that analyze air samples.

"Impinger" means a vessel used for air sampling in which air is drawn through a solution that captures the analyte and allows the remaining air to escape.

"Quality control check sample" means an uncontaminated sample matrix spiked with known amounts of analytes from a source independent from the calibration standards. It is generally used to establish intra-laboratory or analyst specific precision and bias or to assess the performance of all or a portion of the measurement system.

SUBCHAPTER 2 PROGRAM PROCEDURES AND REQUIREMENTS

7:18-2.4 Categories for certification

(a) An applicant shall apply for certification to perform methods for use in one or more of the following regulatory programs:

6. Clean Air Program

(h) The parameters for which a laboratory may be certified to perform sample analysis and to report results for the purposes of determining compliance with the Clean Air Program are organized within the following categories:

1. Category CAP01: Atmospheric Inorganic Parameters, Non-Metals;

2. Category CAP02: Atmospheric Inorganic Parameters, Metals;

3. Category CAP03: Atmospheric Organic Parameters; and

4. Category CAP04: Atmospheric Radionuclides.

(i) THROUGH (K) RENUMBERED

Table 2.1 illustrates the organization of subchapters 3 through 9 (N.J.A.C. 7:18-3 through 9).

TABLE 2.1 Organization of Subchapters 3 through 9

SUB-CHAPTER	TITLE	CATEGORIES
5	Chemistry	SDW02, SDW04 - SDW06, WPP02, WPP04 - WPP07, SHW02, SHW04 - SHW12 CLP01 - CLP07, **CAP01-04**

7:18-2.6 Conditions for the granting of certification

(c) For Categories **CAP01 through CAP04**, a phase-in period may be available during which a laboratory may continue to analyze regulatory samples by methods not included in the laboratory certification program prior to adoption of the Clean Air Program in this chapter. To qualify for the phase-in period, the laboratory shall satisfy the requirements listed in 1 and 2 below.

1. By (**date that is 180 days after the operative date of these Clean Air Program amendments**), the laboratory shall submit an administratively complete application to the Department pursuant to N.J.A.C. 7:18-2.5. When the Department determines that the application is administratively complete, it will provide the laboratory with temporary approval to analyze regulatory samples. The laboratory may continue analyzing regulatory samples while the temporary approval is in effect. The approval shall remain in effect until one of

the following occurs:

i. The Department issues a certification and Annual Certified Parameter List pursuant to (b) above;

ii. The laboratory fails to satisfy the requirements for certification within the time specified in (c)2 below; or

iii. The Department denies the certification.

2. Within one year after submitting the application under (c)1 above, the environmental laboratory shall satisfy all other requirements for certification under (a) above. If the environmental laboratory satisfies all of these requirements except the requirement for an on-site audit, and the on-site audit requirement has not been satisfied because the Department has not scheduled the audit, the temporary approval shall remain in effect until an event listed in (c)1i or 1iii occurs.

3. If a laboratory fails to submit an administratively complete application within the time allotted under (c)1 above, or if the temporary approval expires under (c)1i or 1iii above, the phase-in period is forfeited. The laboratory shall discontinue all regulatory sampling and analysis for Categories **CAP01 through CAP04**. Thereafter the laboratory shall follow the regular procedure for obtaining certification in accordance with N.J.A.C. 7:18-2.5.

7:18-2.8 Procedure for modification of certification status by the addition or deletion of parameters, categories and/or combined categories

(a) A certified environmental laboratory seeking to modify its certification, or a laboratory seeking to modify its application for certification under N.J.A.C. 7:18-2.5, shall submit an application to the Department at the address specified in N.J.A.C. 7:18-1.6(a). In the application, the laboratory shall include the following:

1. Any changes that the laboratory seeks to make in the areas for which it is certified or has applied to be certified, including all information required under N.J.A.C. 7:18-2.5(b)4;

2. Information required under N.J.A.C. 7:18-2.5(b)6 and 7, with respect to any additional personnel needed for additional areas of certification pursuant to N.J.A.C. 7:18-2.10;

3. Information required under N.J.A.C. 7:18-2.5(b)8, if applicable to the modification;

4. The certification required under N.J.A.C. 7:18-1.9(a), signed by the person required under N.J.A.C. 7:18-1.9(b); and

5. The fees required under N.J.A.C. 7:18-2.9, in the form of a check payable to "Treasurer, State of New Jersey." However, if the modification is part of a renewal application under N.J.A.C. 7:18-2.7(b), then the laboratory need not pay the fee for "Administrative Activities - Request for modification in certified, applied or interim approval status."

(b) Before approving the modification, the Department may require proficiency testing pursuant to N.J.A.C. 7:18-2.13 and/or an on-site audit pursuant to N.J.A.C. 7:18-2.14. The Department shall base its decision to require proficiency testing and/or an on-site audit upon the degree of competence and compliance with this chapter that the environmental laboratory has demonstrated through previous proficiency testing and on-site audits.

(c) The Department shall approve the modification only if the laboratory satisfies all of the requirements under N.J.A.C. 7:18-2.6(a) that are applicable to the modification.

7:18-2.9 Fees

(a) A laboratory applying for an initial or renewal certification or for modification of a certification shall include with the application the fees required under this section. Fees are not refundable.

(b) The fee schedule is set forth below. To calculate the fee for a given service, add the fee for the administrative activity and the fee for each category affected by the application. For example, if a laboratory seeks an initial certification in category SDW01, the fee would be the sum of $825 (the administrative activity fee) and $206 (the category fee), for a total of $1031.

ENVIRONMENTAL LABORATORY APPLICATION, CHANGE-OF-STATUS, AND CERTIFICATION CATEGORIES	FEES
I. ADMINISTRATIVE ACTIVITIES	
Initial Application Fee for Certification	$ 825
Renewal Application Fee for Certification	$ 295
Request for modification in certified, applied or interim approval status	$ 236
Alternate Test Procedure Application	$ 118
Alternate Test Procedure Evaluation	$ 2004
VII. CLEAN AIR PROGRAM CATEGORIES (CAP01-CAP04)	
CAP01 Atmospheric Inorganic Parameters, Non-Metals	**$ 118**
CAP02 Atmospheric Inorganic Parameters, Metals	**$ 147**
CAP03 Atmospheric Organic Parameters	**$ 236**
CAP04 Atmospheric Radionuclides	**$ 118**

(h) The modification fee of $236 specified at (b) above does not apply to those laboratories modifying their existing certification to obtain certification in sampling activities, for conformance with the PWTA during the time period specified at N.J.A.C. 7:18-2.6(d)1.

(i) The modification fee of $236 specified at (b) above does not apply to those laboratories that modify their existing certification in order to obtain certification in categories in the Clean Air Program (CAP) during the rule phase in period specified at N.J.A.C. 7:18-2.6(c).

7:18-2.10 Environmental laboratory personnel requirements

(b) No environmental laboratory shall be certified to perform analyses in a Category unless the supervisor and operating personnel (where so indicated) meet the following requirements:

2. For Chemical Testing in Categories: SDW02, Inorganic Parameters Including Sodium and Calcium; WPP02, Inorganic Parameters, Nutrients & Demand (except those listed in (b)2 above); **CAP01, Atmospheric Inorganic Parameters, Non-Metals; and CAP04, Atmospheric Radionuclides**, the supervisor shall meet the requirements of at least one of the qualification levels listed below:

QUALIFICATION LEVEL	DEGREE	YEARS OF EXPERIENCE CHEMICAL ANALYSIS AND/OR TRAINING
A	≥BA/BS[1]	1[2]
B	AA[1]	3[2]
C	None	5[2]

[1] Degree in a chemical, physical, biological, or environmental science from an accredited institution.

[2] Have at least one year of laboratory experience in the chemical analysis of drinking water, water pollution, solid/hazardous waste samples **or air samples**.

4. For Chemical Testing in Categories: SDW04, Inorganic Parameters, Metals; WPP04, Inorganic Parameters, Metals; SHW04, Inorganic Parameters, Metals; **CAP02, Atmospheric Inorganic Parameters, Metals**; SHW09, Miscellaneous Parameters, and SHW10, Facility Specific Methods, the supervisor shall meet the requirements of at least one of the qualification levels listed below:

QUALIFICATION LEVEL	DEGREE	YEARS OF EXPERIENCE CHEMICAL ANALYSIS AND/OR TRAINING
A	≥BA/BS[1]	1[2]
B	AA[1]	3[2]
C	None	5[3]

[1] Degree in a chemical, physical, biological, or environmental science from an accredited institution.

[2] Have at least one year of laboratory experience in the analysis of drinking water, water pollution, solid/hazardous waste samples **or air samples**; and have six months experience in one or more instrumental techniques for the determination of metals, minerals (asbestos), metal ions, or anions, or have completed a formal training course in the operation of one or more of those instruments.

[3] Same as footnote 2 above except that three years of laboratory experience in the analysis of drinking water, water pollution, solid/hazardous waste samples, **or air samples** is required.

5. Operators of ICP/MS instruments shall meet the requirements of (b)4 above, but in addition, are required to have both six months operating experience and a formal training course in ICP/MS;

6. Operators of transmission electron microscopes (TEMs) shall meet one of the qualification levels of (b)4 above, but the number of years of experience required at all levels must include one year in determining asbestos in air or water using a TEM and energy dispersive x-ray analyzer. Operators shall have completed a formal training course in transmission electron microscopy;

7. For Chemical Testing in Categories: **CAP03, Atmospheric Organic Parameters**; SDW05, Organic Parameters, Chromatography; SDW06, Organic Parameters, Chromatography/Mass Spectrometry; WPP05, Organic Parameters, Chromatography; WPP06, Organic Parameters, Chromatography/Mass Spectrometry; WPP07, Individual Pesticides (GC, GC/MS, TLC); SHW05, Organic Parameters, Preparation & Screening; SHW06, Organic Parameters, Chromatography; SHW07, Organic Parameters, Chromatography/Mass Spectrometry; SHW08, Polychlorinated Dibenzo-p-dioxins and Polychlorinated Dibenzofurans; SHW09, Miscellaneous Parameters; SHW10, Facility Specific Parameters; SHW11, Incinerator Emissions; and SHW12, Immunoassay, the supervisor shall meet the requirements of at least one of the qualification levels listed below:

QUALIFICATION LEVEL	DEGREE	YEARS OF EXPERIENCE CHEMICAL ANALYSIS AND/OR TRAINING
A	≥BA/BS[1]	1[2]
B	AA[1]	3[2]
C	None	5[3]

[1] Degree in a chemical, physical, biological, or environmental science from an accredited institution.

[2] At least one year of laboratory experience in chemical testing of drinking water, water pollution, solid/hazardous waste samples, **or air samples**; and have six months experience in the instrumental technique (GC, LC, GC/MS, or LC/MS) being practiced for the analysis of drinking water, water pollution, solid/hazardous waste samples, **or air samples**. A formal training course in the instrumental technique for which certification is sought may be substituted for the experience requirements.

[3] Same as footnote 2 above except that three years of laboratory experience in chemical testing of drinking water, water pollution, solid/hazardous waste samples, **or air samples** is required.

7:18-2.15 Cancellation, suspension or revocation of certification

(b) The Department may suspend a certified environmental laboratory's certification for any one or more of the grounds listed below. Grounds for suspension include the following:

3. For all Categories, except those in Radiochemical Testing, Radon/Radon Progeny-in-Air, or Categories SDW05, SDW06, WPP05, WPP06, WPP07, SHW05, SHW06, SHW07, SHW08, SHW09, SHW12, CLP02, CLP03, CLP05, CLP07, **CAP02, and CAP03**, failing to acceptably analyze all samples for any one parameter in two consecutive proficiency studies. This failure is grounds for suspension in the parameter;

4. For Categories SDW05, SDW06, WPP05, WPP06, WPP07, SHW05, SHW06, SHW07, SHW08, SHW09, SHW12, CLP02, CLP03, CLP05, CLP07, **CAP02, and CAP03**, failing to acceptably analyze all samples for any one parameter in two consecutive proficiency studies. This failure is grounds for suspension in the method used to analyze the parameter in question;

SUBCHAPTER 5 CHEMICAL TESTING

7:18-5.1 Scope

(a) This subchapter applies to certified environmental laboratories when performing chemical testing on regulatory samples, and to other laboratories performing chemical testing on PE samples to become certified. This subchapter applies to chemical testing for parameters in the following categories:

5. Clean Air Program:

i. Category CAP01: Atmospheric Inorganic Parameters, Non-Metals;

ii. Category CAP02: Atmospheric Inorganic Parameters, Metals;

iii. Category CAP03: Atmospheric Organic Parameters; and

iv. Category CAP04: Atmospheric Radionuclides.

7:18-5.2 Requirements for environmental laboratory equipment and instruments

(a) The supervisor shall have control over the equipment and instruments used in chemical testing. The laboratory shall use only equipment and instruments that meets the applicable requirements listed in (a)1 through 17 below, the applicable requirements of N.J.A.C. 7:18-3, and the requirements of the applicable DSAM.

19. The laboratory shall have documented procedures for the calibration and verification of air sampling equipment such as pumps, meter boxes, critical orifices, flow measurement devices and continuous analyzers, if this equipment is used or supplied by the laboratory.

20. All air sampling canisters shall be internally passivated by the SUMMA electropolish process, as set forth in the methodologies referenced at N.J.A.C. 7:18-1.5(a)5, or other EPA approved processes.

7:18-5.3 Required use of DSAMs

(c) If a laboratory applies for certification for an analytical method under the Clean Air Program that requires other analytical methods to be performed as part of the analysis, the laboratory shall also apply for certification for all of the required methods.

7:18-5.5 Requirements for quality assurance/quality control program

(c) A laboratory performing chemical testing shall conduct the quality control checks specified in the applicable DSAMs, and the following additional checks:

5. The laboratory shall prepare calibration curves used in the analysis of metal parameters in Categories SDW02, SDW04, WPP02, WPP04, SHW04, SHW09, **and CAP02**. When the laboratory uses computer-controlled equipment, **the laboratory shall follow the requirements for calibration curves in (c)4 above, except that a minimum of one reagent blank and three standards shall be required, and** the laboratory shall follow the manufacturer's instructions for calibrating the instrument and shall verify the calibration curve with two calibration check standards, one at the low end of the concentration range and the other at the high end;

6. The laboratory shall analyze blanks at the frequencies required by the applicable DSAM. **For methods used in categories CAP01, CAP02, and CAP03 that do not address method blank requirements, method blanks shall be performed at a frequency of at least one per batch of 20 environmental samples or less per sample preparation method, or at least once each day of instrument operation, whichever is more frequent. If the method blank result is greater than the detection limit and contributes greater than 10 percent of the total amount of analyte found in the sample, the source of the contamination must be investigated and measures taken to eliminate the source of contamination. If contamination is found, the data shall be qualified in the report;**

7. For parameters in categories SDW02, SDW04, WPP02, WPP04, SHW04, SHW09, **CAP01, CAP02, and CAP03**, the laboratory shall conduct quality control (QC) check sample analyses to verify the accuracy of the analytical system for the parameter. For each QC check sample analysis, the laboratory shall record the results of the analysis, the date on which the verification analysis was performed, and the method of verification. The laboratory shall have the analyst who performed the analysis sign the record.

i. If the laboratory analyzes 20 or more samples in a calendar month, it shall analyze one QC sample for every 20 samples analyzed during the month. If the laboratory analyzes fewer than 20 samples in a calendar month, it shall analyze one QC sample during the month; and

ii. The laboratory shall calculate the percent recovery (%R) for each parameter in the QC sample. The %R shall be within the limits listed in

the applicable DSAM. If the applicable DSAM does not list such limits, the laboratory shall calculate such limits from its experimental data, using the procedure in (c)9 below. If the %R is not within three standard deviations of the limits, the laboratory shall re-analyze the samples in question;

iii. For categories CAP01, CAP02, and CAP03, if a spiking solution is not available, a calibration solution, whose concentration approximates that of the samples, shall be included in each batch and with each lot of media. If a calibration solution must be used for the QC sample, the client will be notified prior to the start of analysis. The concentration of the QC sample shall be relevant to the intended use of the data and either at a regulatory limit or below it.

8. In all cases, the laboratory shall conduct matrix spike and matrix spike duplicate sample analyses to verify the accuracy and precision of the DSAM for the applicable parameters in the Categories SDW02, SDW04, WPP02, WPP04, SHW04, SHW09, **CAP01, CAP02 and CAP03**.

   i. The laboratory shall verify the accuracy and precision of its analyses of parameters in the above categories. The laboratory shall maintain records of such verifications, signed by the analyst performing the verification. In the records, the laboratory shall include the date on which it performed the verification, the method of verification, and the results;

   ii. If the laboratory analyzes 20 or more samples for any one parameter in a calendar month, it shall verify the accuracy and precision of such analyses on at least one of every 20 samples analyzed during the month. If the laboratory analyzes fewer than 20 samples for any one parameter in a calendar month, it shall verify the precision of the analysis once a month;

   iii. The laboratory shall calculate the percent recovery (%R) for each matrix spike and the relative percent difference (RPD) between the matrix spike and matrix spike duplicate for each parameter. The %R and RPD shall meet requirements of the applicable DSAM. If the method does not list limits for %R and RPD values, the laboratory shall establish these limits from its experimental data, using the procedure in (c)9 below;

   iv. For categories CAP01, CAP02, and CAP03, matrix spikes and matrix spike duplicates are not required for those air samples that are introduced directly into an analytical instrument from SUMMA sampling canisters, sorbent tubes, or polyurethane foam (PUF) traps.

9. In all cases, the laboratory shall calculate and document standard deviations for all applicable measurements conducted in Categories SDW02, SDW04, WPP02, WPP04, SHW04, SHW09 **and CAP01, CAP02 and CAP03**, in accordance with the following requirements:

   i. The laboratory shall calculate standard deviations for n-1 degrees of freedom (n samples - 1) for all %R and RPD measurements in (c)7 and

8 above. For this calculation in connection with (c)7 above, the laboratory shall use ongoing data collected from the analysis of 10 QC samples; for this calculation in connection with (c)8 above, the laboratory shall use ongoing data collected from the analysis of 10 matrix, matrix spike pairs. For parameters in Category SDW02 or SDW04, the laboratory shall use samples that have been prepared at the MCL. For other parameters, the laboratory shall use samples that have been prepared to approximate the middle of the concentration range normally encountered in the analysis. The laboratory shall record the theoretical or true value. The laboratory shall calculate and plot the mean value, the warning limits (2 standard deviations), and the corrective action limits (3 standard deviations); and

ii. The laboratory shall record subsequent quality control results for each parameter, and compare the results against its control limits. The control limits shall be updated after a batch of 20 new measurements.

10. A certified environmental laboratory or a laboratory that is applying for certification shall determine its own MDLs in reagent water. MDL data are required for all DSAMs containing reference MDL data for which the laboratory possesses or is applying for certification. The laboratory shall make the MDL determinations in accordance with 40 CFR 136 Appendix B. The Office of Quality Assurance may require the laboratory to determine MDLs for any DSAMs for which it possesses certification. This data is required to support Water Technical Programs N.J.A.C. 7:9-4 and 6:

i. For analyses in the Clean Air Program, the laboratory shall utilize a test method that provides a detection limit that is appropriate and relevant for the intended use of the data. Detection limits shall be determined by the protocol in the mandated test method or in accordance with 40 CFR Part 136, Appendix B. If the protocol for determining detection limits is not specified, the selection of the procedure shall reflect instrument limitations and the intended application of the test method. A detection limit study is not required for any component for which spiking solutions are not available. All procedures shall be documented. Documentation shall include the matrix type. All supporting data shall be retained. The laboratory shall have established procedures to tie detection limits with quantitation limits.

7:18-5.6 Requirements for records and data reporting

(l) The laboratory shall include at least the following information in reporting analyses for the Solid/Hazardous Waste program or the CERCLA-CLP program, **or the Clean Air Program**:

1. Certified environmental laboratory name and New Jersey environmental laboratory identification number;

2. The date and time of sampling, sample preparation and analysis;

3. Specific and unique identification of the sample;

4. The type of analysis performed and the analytical method employed, including

the method number;

5. The name of each parameter;

6. The dilution factor (DF), if the factor was diluted (for example, to reduce matrix interference);

7. The sample MDL. If the sample was diluted, the laboratory shall adjust the MDL to reflect the dilution. To calculate the adjusted MDL, the laboratory shall multiply the reagent water MDL by the DF. MDL values are not required for CLP reporting;

8. The name and signature of the environmental laboratory manager or designee identified pursuant to N.J.A.C. 7:18-2.11(a)1iii; and

9. The results of the analysis, to be reported as specified in the DSAM.

(m) In addition to the information required under (l) above, the laboratory may report an extended list of target compounds if it meets the standardization and quality control requirements of the applicable DSAM and N.J.A.C. 7:18-5.5 for the additional parameters on the extended list.

(n) Laboratories shall not report analyte concentrations for the Clean Air Program that are below clean canister certification levels, artifact levels for sorbent tubes, or any other blank level as specified in the test method.

SUBCHAPTER 9 SAMPLE REQUIREMENTS

7:18-9.3 Requirements for inorganic, organic, and radiochemical parameter samples

(a) Regulatory samples to be analyzed for one or more inorganic, organic or radiochemical parameters shall be handled and preserved as follows:

8. Air samples to be analyzed for one or more chemical parameters shall be handled and preserved in accordance with the applicable requirements in Table 9.7 in N.J.A.C. 7:18-9.4(h)

7:18-9.4 Requirements for sample handling and preservation for specific parameters

(h) Air samples shall be handled and preserved in accordance with the requirements of Table 9.7. Table 9.7 includes applicable requirements from the methods for the analysis of airborne emissions, listed in 40 CFR 51M, 60A, 61B, and 63A; and The Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air (EPA document EPA/625/R-96/010b). If there is any conflict between Table 9.7 and the USEPA rule or publication (including any amendments or supplements), the USEPA rule or publication shall control.

TABLE 9.7 REQUIRED CONTAINER, PRESERVATION TECHNIQUES, AND HOLDING TIMES FOR AIR SAMPLES.

Parameter	Preservation	Container	Maximum Holding Time

All Parameters Determined by TO-15	None	EPA-Approved Canister	30 days
All Parameters Determined by TO-17	Cool 4 degrees Celsius in organic solvent-free environment	Stainless steel, glass, or glass lined stainless steel tubes packed with >200 mg solid adsorbent	30 days